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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,725	05/04/2001	Chien-Jen Chen	ONETTA-67	8417

36532 7590 04/22/2004

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EXAMINER

CUNNINGHAM, STEPHEN C

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/848,725

Applicant(s)

CHEN ET AL.

Examiner

Stephen C. Cunningham

Art Unit

3663

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01/16/2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghera et al. ('922) (hereafter "Ghera") in view of Park et al. ('716) (hereafter "Park") and Horiuchi et al. ('508) (hereafter "Horiuchi").

Regarding claim 1, Ghera teaches optical amplifier equipment that amplifies optical data signals in a fiber-optic communications link that has at least one span of transmission fiber for carrying the optical data signals, comprising: (1) a Raman pump that produces Raman pump light at first and second wavelengths to create Raman gain for the optical data signals in the span of transmission fiber, wherein the first wavelength is different from the second wavelength (Fig. 2, 120; column 7, lines 64-65 (notice "at pump wavelengths" where wavelengths is plural); (2) an optical monitor that measures a first as well as any other backscattered pumping light from the span of transmission fiber (See Fig. 2, 290; column 7, lines 1-35; column 8, lines 21-31; column 7, lines 64-65 (describing a measuring step for back reflected pump light "at pump wavelengths" (emphasis added))); (3) a control unit that uses the Raman pump and the optical monitor to perform OTDR measurements on the transmission fiber (see *inter alia*, column 7);

and (4) a pulsed pump wavelength to perform optical time domain reflectometry measurements (see, e.g. column 7, lines 6-19).

Ghera fails to teach pump light the first wavelength is modulated to measure the effects of adjusting the Raman gain produced by the Raman pump light at the first wavelength in the span of transmission fiber. Horiuchi teaches that there is a need in the art for a device that superimposes a control signal on the signal light in order to provide remote amplification control (See column 1, lines 11-52). Park teaches such an apparatus.

Park teaches a Raman pump laser that is modulated which transfers the modulation to the signal wavelengths (Abstract). The modulation in the signal wavelength is used to determine the gain.

It would have been obvious to modify the apparatus of Ghera by providing a modulated pump amplitude to superimpose a control signal on the transmitted signals to provide remote amplifier control.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghera in view of Park and Horiuchi as applied to claim 1 above, and further in view of Emori et al. (Elect. Lett. 34:22 (1998)) (hereafter "Emori") (cited by Applicant in Paper No. 2).

Regarding claim 2, Ghera does not teach that the pumping sources comprise a plurality of laser diodes. Such are well known in the art to be effective Raman pump sources. Emori teaches a plurality of laser diodes for pumping a Raman amplifier. It would have been obvious to one of ordinary skill in the art at the time of invention by

Applicant to utilize laser diodes as the plurality of laser sources in the Ghera Raman amplifier because such are well known in the art to provide ample pump light to Raman amplifiers, and are easily controllable.

### ***Response to Arguments***

Applicant's arguments filed on 16 January 2004 have been fully considered but they are not persuasive.

Applicant has argued that the instant invention utilizes *the same two wavelength of Raman pump light that are used to produce Raman gain for the optical data signals during normal operation are also used as the "pump and probe" wavelengths during span characterization*. There is no reference, in the claims, to a span characterization. Applicant further argues that *this makes applicants' equipment less complicated than equipment in which extra sources are used to make characterizing measurements*. Applicant has not expressed why the combination of the Ghera and Park references would require extra sources to make characterizing measurements.

The examiner does not contest that neither cited reference individually teaches both a pump and a probe. However, when combined it is believed that the limitations, as claimed by Applicant, are met.

There is no claim limitation requiring the apparatus to make measurements without data traffic nor a limitation disallowing a tap interposed in the signal path.


Claim 2 stand or falls with claim 1 and therefor is rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen C. Cunningham whose telephone number is 703-605-4275. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (703)306-4171. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

SCC

  
THOMAS H. TARCZA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600